

SECTION 107113

Exterior Sun Control Devices

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide fixed custom sunshades as shown on the drawings, as specified, and as needed for a complete and proper installation.
- B. The Drawings show the extent of the work, the dimensioned profile and depth of the sunshade to be provided.

****** List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. ******

- C. Related sections:
 - 1. Section 03 40 00 - Precast Concrete
 - 2. Section 04 20 00 - Unit Masonry
 - 3. Section 07 42 13 - Metal Wall Panels
 - 4. Section 08 41 00 - Entrances and Storefronts
 - 5. Section 08 44 00 - Curtain Wall and Glazed Assemblies
 - 6. Section 05500 Metal Fabrications

1.3 REFERENCES

****** List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. ******

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM A1011/A-04, A572, A578 Standard Specification for Steel Sheet and Strip
 - 2. ASTM A36 - Structural Steel.
 - 3. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 4. ASTM A526 - Sheet Steel, G-90 Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - 5. ASTM A792 - Steel Sheet, Aluminum-Zinc Alloy-Coated (Galvalume) by the Hot Dip Process.
 - 6. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

7. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
8. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
9. ASTM D822 - Tests on Paint and Related Coatings Using Filtered Open-Flame Carbon-Arc Exposure Apparatus.
10. ASTM D3363 - Test Method for Film Hardness by Pencil Test.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance:

1. Combined load on sunshade configurations to be determined in accordance with ASCE 7 or applicable code requirements. Combined load consists of wind, snow and ice loads.
2. Design sunshade configurations to withstand stresses due to combined load. Stresses resulting from thermal expansion/contraction shall not cause permanent deformation of sunshade assemblies or disengagement from the glazing system.
3. The assembled sunshade shall be capable of supporting the specified combined load without damage, permanent set.
4. Blade, fascia and outrigger deflection shall not exceed $L/120$.
5. Submit engineering calculations by a licensed profession in the project state verifying compliance with structural performance requirement required by the project.

B. Shading Performance:

1. Design of standard configurations will allow for negligible direct sunlight to show through the blades based on project location, latitude, altitude, building orientation, surrounding conditions, and aesthetic requirements, except for round, and square style blades.

1.5 SUBMITTALS

- A. Product Data: Submit specifications, data and installation instruction from the manufacturer of the sunshades.
- B. Shop Drawings: Submit drawings for the system, show plans, elevations, sections, blade or infill orientation and spacing, and attachment and anchorage details.
- C. Samples: Submit one sample to show sufficient detail of the sunshade units.

1.6 QUALITY ASSURANCE

- A. Design structural support framing components for sun shades under direct supervision of professional structural engineer.
- B. Installer qualifications: Approved by manufacturer for installation of sunshade system.

1.7 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.

1. Warranty Period: One year from date of substantial Completion of the project provided however that the Limited Warranty shall begin no event later than six month from date of shipment by manufacturer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. OGi Architectural Metal Solutions (800.321.9800) **BLADE SERIES** fabricated sunshades of required components, or equal as approved by architect.
- B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 25 13 - Product Substitution Procedures.

2.2 MATERIALS

- A. Aluminum Extrusions: Alloy and temper recommended by sunshade manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.07” wall thickness at any location for the main frame and complying with ASTM b211: 6063-T6, 6105-T5 or 6061-T6 alloy and temper.
- B. Sheet aluminum: ASTM B209 6063, Temper T-6.
- C. Fasteners: Fasteners shall be aluminum or stainless steel. Provide types, gauges and lengths to suit unit installation conditions.
- D. Anchors and inserts: Use non-Ferrous metal, stainless steel or hot-dipped galvanized anchors and inserts for installation and elsewhere as required for carrion resistance. Use stainless steel or lead expansion bolt devices for drill-in place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.3 GENERAL FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Fabricate components that, when assembled, have the following characteristics:
 1. Profiles which are straight and free from defects or deformations.
 2. Accurately fitted joints with minimally visible gaps.
 3. Accommodations for thermal and mechanical movements.
 4. Fasteners, anchors and connection devices that concealed from view to greatest extent possible.
- C. Sunshade: Fabricate components for assembly following approved shop drawings and manufacturers standard installation instructions.
- D. After fabrication, clearly mark components to identify their locations in Project according to approved shop drawings.

2.4 SUNSHADE CONSTRUCTION

- A. Components: All fascia, blades, infills and outrigger components shall be fabricated in accordance with manufacture standards for specified system model.
 1. Wall brackets shall be fabricated from aluminum or stainless steel and be designed to receive and anchor the outrigger to the substructure and include all mounting hardware.

2. Outriggers shall be a single flat plate, sized and shaped as indicated on the drawings and to meet structural loads applied to the fabricated assembly.

****** List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. ******

3. Blades: Blade assemblies shall be mechanically fastened or welded from manufacturer standard products
 - a. Size: Manufactured from 4", 6" or 8" from extruded aluminum design.
 - b. Type: Manufactured from airfoil, long-span airfoil, round, rectangle, Z-blade or shutter blade from extruded aluminum design. Rotated as shown in architectural drawings.
 - c. Assembly: Blades shall be factory assembled to outriggers using stainless steel type F, thread cutting screws through internal screw bosses in blades or welded.
4. Fascias: Fascias shall be of shape and size as indicated in drawings and to meet structural loads applied to the fabricated assembly.

2.5 FACTORY FINISH

- A. General: Comply with NAAMM 'Metal Finishes Manual' for finish designations and application recommendations, except as otherwise indicated. Apply finishes in factory after products assembly. Protect finishes on exposed surfaces prior to shipment. Remove scratches and blemishes from exposed surfaces which will be visible after completing finishing process.

Provide color as indicated or, if not otherwise indicated, as selected by architect from standard color range of PVDF or super-durable polyester powder coatings from selected vendor.

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- B. Fluorocarbon Coating: Inhibitive thermo-cured primer, 0.2 mil minimum dry film thickness, and thermo-cured fluorocarbon coating.
- C. Super-durable Polyester Powder Coating: Electro-static applied and thermo-cured, 2-3 mil dry film thickness polyester powder coating.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prior to fabrication, field-verify all required dimensions.
- B. Examine openings to receive the work. Do not proceed until any unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install sun shades in accordance with manufacturer's installation instructions and approved shop drawings.
- B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designed, fabricated and fitted to the structure.

- C. Anchor sunshade to building substructure as indicated on architectural drawings.
- D. Erection Tolerances:
 - 1. Variation from level: +/- 1/8" maximum in any column to column space or 20'-0" runs, non-cumulative.
 - 2. Offsets in end-to-end or edge-to-edge alignment of consecutive members 1/32".
- E. Corners: Miter sunshade fascia assembly at outside corner as shown on drawings if required.
- F. Cut and trim component parts during erection only with the approval of the manufacturer and in accordance with his recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly as directed.
- G. Do not erect warped, bowed, deformed or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.
- H. Set units level, plumb and true to line, with uniform joints.

END OF SECTION 107113